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Cumulative Cognitive Deficit in international adoptees: its origin, indicators, and means of remediation

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We keep telling his teachers that it's as if he has no "hooks" to clip information onto in his brain,
and he needs to learn how to learn.
They keep telling us that it's just a language barrier,
switching from one language to the other.
I feel it's much more than that. How can I help my son?

From an adoptive parent's letter

Cumulative Cognitive Deficit - origins

Many parents of school age internationally adopted children have concerns about their children's slower-than-expected progress in school. After the initial phase of seemingly fast new language acquisition and adjustment, some of these children show significant difficulty in their academic work, which, in turn, often brings behavioral and emotional problems. Their learning difficulties persist and even worsen well beyond the time when academic problems can be attributed to language learning and school adjustment. As they progress through the developmental stages and school grades they fall farther and farther behind in academic tasks; their overall dynamic of cognitive/language development and academic performance fails to match the comprehensive and relentless efforts of the adoptive parents and educational professionals.

These children may experience what is known in cognitive psychology and remedial education as "Cumulative Cognitive Deficit" (CCD). CCD is a downward trend in measured intelligence and scholastic achievement of culturally and socially disadvantaged children relative to age-appropriate societal norms and expectations. The current understanding of CCD is that children who are deprived of enriching cognitive experiences during their early years are less able to profit from a new and enriched environmental situation because of a mismatch between their cognitive maturity and the requirements of this new, more advanced learning situation.

Young children learn in two major ways: directly (through observing, experimenting, experiencing, and imitating) and indirectly (through adults who mediate knowledge for children by selecting and modifying input from the

outside world and directing children's responses). A child may observe steam coming out of a teapot. By touching this teapot and experiencing pain the child learns that steam is associated with something hot and that may be painful. The same knowledge can be mediated by the parent, who points to a boiling teapot, saying "Hot" and imitating pain from a burned finger. Through direct and mediated learning major cognitive skills and processes are formed and put in action. Deprived of such experiences, children are indeed disadvantaged and may have problems moving to more advanced levels of learning. When a child misses certain stages of normal cognitive development and never learns generic concepts necessary for successful schooling, the educational matter this child is taught simply does not have any structural support upon which to be understood, remembered, and used.

Let's consider a clinical case of CCD in a child adopted from an overseas orphanage.

Anya's case

Anya was adopted at age 7, having completed 1st grade in her native Ukraine. She had been in an orphanage since birth. Her medical documentation described her premature, suffering from anemia, rickets, and malnutrition. The records showed a diagnosis of "delays in psychological and language development," almost a standard feature of children adopted from Eastern European orphanages. No evidence of neurological impairment was found during Anya's examination by a developmental neurologist in the USA. At the time of her initial psychological evaluation Anya was a practically monolingual (Ukrainian only) child. Her academic skills were tested against the Ukrainian curriculum in language, math, and general knowledge. She was found to have unevenly developed and rather delayed literacy skills. Her developmental status, estimated in terms of skills of daily living, self-help, socialization, and gross/fine motor skills, appeared age-appropriate. Her cognitive functioning was tested through the Universal Nonverbal Intelligence Test and through several language-based tasks presented in Ukrainian. Anya's performance, although inconsistent, was judged to be within average age-appropriate range. Her particular weakness was in sequential skills: it was difficult for her to recall auditory and visual information in proper sequence and detail and to apply cognitive strategies that require step-by-step procedures. Like a much younger child, she needed constant visual references to support her understanding or reasoning. Although her communicative fluency in her native language was age-appropriate, her ability to use language as a tool of mental operations was limited and ineffective. Anya was losing her native language while second language acquisition was somewhat slow. Despite the obvious mismatch between Anya's level of readiness and the demands of her school setting, she was placed by age in a regular 2nd grade, with English as a Second Language instruction and no remedial services.

Anya's next test was two years later, requested by parents concerned with Anya's slow progress in school. As two years earlier, Anya was a monolingual child, this time in English: she had completely lost her native language. Although her communicative fluency in English seemed to be at least functional, her academic English was very limited: at least 2 grades below her 4th grade academic placement. Standardized testing showed a Low Average to Borderline range of intellectual functioning. Further testing of cognitive abilities revealed many deficiencies: Anya demonstrated poor comprehension of concepts and limited ability to memorize academic information. Her learning behavior was inefficient and immature: she was engaged in impulsive and disorganized "exploratory" actions, mostly through "trial-&-error" attempts. Her short-term memory was weak, with particular difficulty in grasping the sequence in which tasks were presented. Her attention, motivation, and ability to tolerate frustration in cognitive activities were noticeably worse than before. It was obvious that Anya's cognitive and language abilities developed too slowly to meet the changing demands of her educational setting. Still, the school refused to classify Anya as a student with an educational handicapping condition, explaining her difficulties by her detrimental past and simply giving her more time for recovery.

A year later, mostly due to Anya's escalating behavior problems (anger, refusal to participate in classroom activities, failure to submit homework, etc.) the school initiated a comprehensive evaluation. Anya's progress was discussed in

comparison with the requirements of her current grade curriculum: 5th grade. She made only a few gains in her academic advancement, and her insufficiency in cognitive/academic functioning continued to increase. An examination completed by a school psychologist using the Stanford-Binet Intelligence Scale, revealed Borderline to Mental Deficiency range of general cognitive ability - a decline since her previous evaluations. Anya revealed difficulties in all language-based tasks that measured comprehension. Her selective attention, processing speed, and mastery of cognitive operations (such as: associations, categorization, classification, discrimination) were found to be well below age expectations. Anya's teachers also reported delayed academic skills in reading and writing activities, poor comprehension of abstract notions and concepts, incompetence in many age-appropriate mental activities, constant "tiredness", "daydreaming", and "boredom" in classroom (which was in sharp contrast to her keen interest and energy in social situations). There was an obvious disparity between her current instructional setting and her ability to benefit from it. This time the educational classification "learning disabled" was assigned and the remedial work was spelled out in Anya's Individual Educational Plan. But the valuable time was lost.

Specificity of Cumulative Cognitive Deficit in international adoptees

There are several major intertwined characteristics of CCD:

- Lack of age-appropriate cognitive skills, resulting in progressive cognitive and behavioral incompetence.
- Poor organization of knowledge base, resulting in ineffective learning, constant forgetting of learned material, and inability to transfer knowledge and skills from one situation to another.
- Very limited meta-cognitive skills, such as monitoring one's own thinking or learning how to study by mastering learning strategies and methods.
- Cognitive language deficiency, often existing concurrent with age-appropriate social "every-day" language.
- Immature self-regulation of behavior, resulting in poor concentration and limited attention span.
- Lack of intrinsic motivation for learning or achieving in learning activities
- Chronic mismatch between the child's learning capacity and academic placement, teaching style, and level of instruction

From educational perspectives, CCD is complex: a combination of internal (language, cognition, motivation) and external (teaching methods, learning environment, peer interaction) factors. To complicate the picture, due to its "summative" nature CCD can go undetected in the early stages of the child's educational journey: it takes time for the cognitive deficit to become "cumulative." Almost all cognitive abilities are developmentally hierarchical; the appearance of more complex cognitive structures rests upon the prior appearance of simpler components. The psychological roots of CCD are in the absence of a viable foundation for productive development of more complex cognitive skills and processes. For example, elementary cognitive skills like patterning or sequencing, typically formed between 3 and 5 in a normally developing child through direct experience and mediated learning, may not be present in a 7 or 8 year old former orphanage resident. However, more complex math and reading skills rest on these basic cognitive notions, so without re-building the base, no successful remediation is possible. Unfortunately, traditional remediation in schools simply assumes the presence of an appropriate base and tries to build compensatory structures upon it.

Resembling the population at large in its nature, CCD in internationally adopted post-institutionalized children has specificity which must be recognized and addressed in remedial efforts.

- In international adoptees with CCD there is a high likelihood of some neurological weaknesses, mostly related to premature birth, birth-related traumas, malnutrition, and many subtle neurological impairments not easily detectable in a developmental neurologist's office but observable in immature self-regulation of emotions and behavior, inability to concentrate and be attentive, in fatigue during mental efforts, nervous

tension, and decreased memory capacity. The correlation between these medical conditions and substandard school performance is a well-established fact. Thus, inadequate nutrition - a common occurrence in overseas orphanages - effects functional and structural elements of the developing nervous system and impairs cognition. Even when a child is adopted at a younger age, the risk of CCD may still be present.

- Abrupt first language attrition is one of the most stunning features of international adoption. Most international adoptees age 3 and up learn their new language in the "subtractive" model, with English quickly replacing the first language. This type of language acquisition contributes to CCD, and it is very likely that CCD is reinforced when the first language is lost for all practical purposes while the second language is barely functional communicatively and not in existence cognitively. The overall length of this period depends on the child's age and personality.
- In internationally adopted children CCD can occur concurrent with or as a consequence of serious emotional and behavioral difficulties such as Attention Deficit Hyperactivity Disorder, Post-Traumatic Stress Disorder, or Anxiety Disorder. Although more research is needed to define and explain this clinically observed correlation, the educational implication is obvious: if CCD occurs against the background of serious emotional disturbances, treatment must include a medical component.
- In school-age internationally adopted children the value of cognitive activity, intrinsic motivation in cognitive operations, learning behavior in general, and attitude toward teaching authority may be influenced by cultural differences. We have to realize that CCD in international adoptees is diagnosed on the basis of US middle class norms and expectations. The relationship between cultural differences (in both internationally adopted children and adoptive families) and CCD should be further explored and explained.
- CCD in the population at large is traditionally associated with children from poor and uneducated families. Most international adoptees live in middle-class families with well-educated parents. For the first time families are not ongoing contributing factors in CCD; on the contrary, they can be a powerful remedial factor. Due to adoptive parents' sensitivity and awareness of possible learning problems in their children and because of higher parental expectations, symptoms of CCD are reported earlier and more often to professionals.

Does CCD constitute a learning disability?

This is a complex question. We have to distinguish between the legal definition of learning disability and actual functional symptoms of this handicap. Learning disability as formulated under Individuals with Disability Education Act (IDEA), reauthorized in 2004, explicitly states that it does not include learning problems resulting from "environmental, cultural, or economic disadvantage." CCD is mostly the outcome of educational neglect and cultural deprivation, so CCD cannot be presented in school as the basis for special education services. On the other hand, CCD functionally presents a psycho-educational profile typical for the "Learning Disability" (LD) condition and most certainly creates an educationally handicapping condition. There is also a strong likelihood of a neurological component in CCD and it's often impossible to separate the social and neurological elements of this phenomenon. Thus, clearly identifiable language impairment may be present along with CCD; ADHD - a clinical condition - can be a powerful contributor to CCD. From the legal point of view CCD may be presented in a school context as a part of an educationally handicapping condition already recognized by law, such as Learning Disability, Other Health Impairment, Speech and Language Impairment, or Multiple Disabilities. The exact educational classification may vary depending on the individual educational needs of the child.

Remediation

Questions of great practical significance for many adoptive families are to what degree can CCD be remedied and what is the most effective treatment. CCD is a complex psycho-educational phenomenon, so remedial approaches will also be multifaceted. Let's consider remediation of a child with CCD in three domains: at school, in the

community, and at home.

At school:

To qualify for school-based remediation, a child has to have an educationally handicapping condition recognized by IDEA. The school's legal obligations to children with any of these recognized conditions are spelled out in the Individual Educational Plan (IEP), which contains:

- Educational classification (this is not a medical diagnosis, but rather a description of educational needs for which a child must receive remedial help in school).
- Statements about educational needs.
- Goals of remediation and means of accountability in reaching goals.
- Teaching methodologies.
- Classroom accommodations and test taking modifications.

The IEP is the most powerful tool for parents in organizing, monitoring, and controlling their child's remediation at school. Crucial is a proper timely assessment of the child's educational needs. The best possible option is to obtain an initial assessment in the child's native language within the first weeks after arrival. This assessment should address:

- What are the child's educational needs?
- Does the child qualify for educational classification?
- What is the most appropriate educational placement?
- What supportive and remedial help does the child need?
- What are the goals of remediation?
- What are the methods of remediation?
- How should progress be measured?

The next step is to obtain optimal academic placement. School districts have a tendency to place international adoptees by chronological age, because school authorities see no difference between them and children from immigrant families. However, chronological age is only one of many factors to be considered. We have to take as a reference point the child's actual developmental age and level of functioning. Emotional, cognitive, and behavioral immaturity is the "trademark" of post-institutionalized children. A mismatch between the child's learning capacity and academic placement is a recipe for CCD.

The child must be provided with supportive and remedial services in school, based on specific needs. Speech and language, domain-specific academic and occupational therapy are the most often requested supportive (in general education) or remedial (in special education) services.

Remediation in school presents a problem in itself: school personnel often do not know how to address the specificity of international adoptees, "how to fit these square pegs into the round holes of existing special ed programs" as one parent said. Traditional remediation, based on more intense work in a smaller group using the same teaching methodology as in the classroom, may not be effective or is counterproductive in attempts to overcome CCD. Remedial work with international adoptees having CCD should be based on "cognitive education."

There are many cognitive education approaches created for different age groups; the common ground is a conviction that, while children with CCD have difficulty in originating cognitive strategies spontaneously, they can be taught how to create cognitive algorithms and apply them to cognitive tasks. Through carefully crafted

methodology, they should be taught to inhibit impulsive responses, to analyze a problem, and to experiment mentally with possible solutions. They must be specifically taught "how to learn" (this is the core of cognitive education) and how to use their learned cognitive skills in similar situations ("generalization" or "transference" of cognitive processes).

In order to compensate for the detrimental effect of CCD, remedial interventions in school must be age-appropriate, well-planned, and persistent. They should enrich cognitive language, teach specific cognitive skills, facilitate task-intrinsic motivation, and provide optimal learning settings.

In the community:

There are many remedial programs outside school. Let's consider three well known among adoptive parents seeking CCD remediation.

The Orton-Gillingham approach places heavy emphasis on accurate word decoding (sounding out words) and reading comprehension. It has a strong meta-cognitive component: students are explicitly taught the rules of the language necessary for comprehending, remembering, and communicating academic and social information. Reading comprehension skills include summarizing, paraphrasing, predicting and making inferences. A remedial specialist has to be specially trained in Orton-Gillingham techniques. Most remediation is one-on-one.

The Lindamood-Bell program is a comprehensive remedial program based on Orton-Gillingham principles. Emphasis is placed on learning sound-symbol associations and applying these associations to decoding and encoding skills. It is a structured and elaborated system with four major components: phonemic awareness, concept imagery, symbol imagery, and mathematical reasoning. The last is unique to the program: visualization of math symbols stimulates the ability to verbalize concepts underlying math processes. For students with CCD, this emphasis on mathematical reasoning is crucial. This method is also time consuming and requires a trained clinician.

The Wilson Reading System (WRS) is a carefully sequenced, 12-step curriculum for teaching students able to speak and understand,but not read or write English, including ESL students. WRS directly teaches the structure of words in the English language so students master the coding system for reading and spelling. WRS uses a variety of remedial strategies, including its unique "sound tapping" procedure, manipulating color-coded syllable and word cards, performing finger tapping exercises, writing down spoken words, reading aloud and repeating what students have read in their own words, and hearing others read. Due to its structured and interactive nature, adaptation to ESL students, connection with school content, and specific emphasis on skills transfer into classroom work, WRS is the most suitable for internationally adopted children, including those with CCD.
All three were designed to address language development and literacy skills acquisition in children with language-based learning disabilities. All assume English to be the native language and the children to be emotionally stable, sensory sound, and cognitively capable. None is a panacea; all three are suitable to a certain degree for our children, but expensive and requiring long-term commitment.

At home

The challenges of creating an effective home-based remedial system for internationally adopted children are many. This program should:

- Take into consideration the specificity of international adoptees.
- Be simple and not require special parental skills or training.
- Strengthen the parent's role, promoting attachment and bonding.

- Be a family affair, not a school-like activity - parents should not be second-shift teachers.
- Compliment school-based remediation.
- Address emotional needs along with cognitive issues.

Having all these requirements in mind, the ***SmartStart program*** was created to help parents facilitate thinking and learning in their internationally adopted children. It offers specific activities, focusing on processes that have been found to positively influence the cognitive development of young children. SmartStart activities can begin at any time and are especially beneficial if implemented in the early stages of the child's adjustment to a new life and continued over months and sometimes years. SmartStart attempts to address the missing links in a child's cognitive and language development by introducing basic abstract concepts and verbal notions that should be mastered at earlier developmental ages. The program consciously promotes meta-cognitive skills formation along with academic language development in children ages 3 to 8, using simple every day activities and games. This remedial program directly addresses CCD issues by enriching cognitive language, increasing cognitive competence, and facilitating task-intrinsic motivation. The program consists of an introduction and 7 selections of thematic activities, each pursuing specific goals of cognitive development:

- ***Noticing our world*** teaches using senses to experience the environment and learning how to notice, how to talk about what is noticed, how to help a child pay attention to patterns and sequences, and how to make groups based on perceived features.

- ***Let's make a plan*** teaches thinking strategically, setting goals, making a plan, evaluating results, and making changes in response. The concepts of this unit form the basis for cooperation with others in achieving a goal.

- ***That's fantastic!*** focuses on developing imagination and divergent and hypothetical thinking. Children are encouraged to make "what if?" speculations and to entertain strange combinations and alternative approaches.

- ***The nimble symbol*** directly addresses the use of symbols in our environment and focuses on laying a foundation for emerging literacy and numeracy.

- ***What's the big idea?*** focuses on making rules, getting the main idea, and learning from general principles. It teaches how to derive concepts from empirical experiences.

- ***Who is in charge?*** focuses on development of self-regulation. Children need to learn control themselves and to reduce their dependence on external control.

- ***Making connections: understanding the past - facilitating the future*** emphasizes recalling and understanding linkages between the past and the present. On a more abstract scientific level this unit encourages cause/effect thinking.

Each unit emphasizes goals that parents should have in mind when introducing activities to their children, details instructions on what to do and what to say presenting an activity, contains descriptions of activities, and is accompanied by a vocabulary list of suggested words and phrases for parents to use during activities.

SmartStart is the only methodology specifically designed for international adoptees ages 3 to 8. There is no remedial home-based methodology for older internationally adopted children, but SmartStart is appropriate for

some children ages 9 to 11.

You cannot control the wind, but you can adjust your sails

This article describes some methods of remediation proven successful with international adoptees. We need more research data to build effective remedial strategies to reverse the detrimental trend in intellectual and academic performance known as cumulative cognitive deficit. Parents and educational specialists alike, choosing or developing remediation for international adoptees, should bear in mind the specificity of children adopted from overseas institutions. The majority of internationally adopted post-institutional children have the potential to fully compensate for their detrimental past by receiving enriched environmental stimulation and consistent learning experiences. My appeal to parents and school personnel is to "scaffold" these children to their American dream by providing them with appropriate remediation.

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